REMARKS/ARGUMENT

Claims 24-26 and 30 are allowed.

Claims 2-11, 16, 19, 20, 22, 23, 27-29 and 31, objected to as being dependent upon a rejected base claim, but allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, have been so amended. As a result, Claims 2-11, 16, 19, 20, 22, 23, 27-29 and 31 stand allowable.

1) Claim 32 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully traverse this rejection, as set forth below.

Examiner determined that "it is unclear in the claim whether the output of "history capacitor" is coupled to the input of the rotating capacitor", or the output of "rotating capacitor" is coupled to the input of the "history capacitor", or the output of "rotating capacitor" is coupled to the input of the "history capacitor", and similarly, it is unclear about the functional/operational/structural if input/output of the combination of "a history capacitor and a rotating capacitor" with the input/output "receiver path" (Office Action, page 2, lines 11-16). Applicants disagree and traverse it as being an improper rejection that must be withdrawn.

Dependent Claim 32 further defines the method of claim 21, wherein the receiver path comprises **a history capacitor coupled to a rotating capacitor**.

Independent Claim 21, the claim upon which Claim 32 depends, requires and positively recites, a method of calibrating a predistortion component in a transceiver system, comprising: "providing a first digital signal, containing amplitude information related to a desired analog signal, to a transmitter path", "providing a second digital signal, containing phase information related to the desired analog signal, to the transmitter path", "predistorting at least one of the first

digital signal and the second digital signal in the digital domain according to at least one predistortion parameter", "generating an analog signal from the first digital signal and the second digital signal" and **"processing the analog signal at a receiver path associated with the transmitter path to determine values for the at least one predistortion parameter"**. Applicants respectfully point out that a capacitor is an electrical component (not an active electronic circuit with clearly defined signal flow and input/outputs) so it does NOT make any sense to assign an input and an output without Examiner providing prior art that would justify Applicants narrowing the scope of the claim.

Claim 32 (which further includes the limitations of Claim 21) clearly states the interconnection between the elements recited in the body of the claim. A complete and clear apparatus is recited. MPEP 706.03(d) paragraph 7.34.01 (Examiner's Note) specifically states: "If the scope of the claimed subject matter can be determined by one having ordinary skill in the art, a rejection using this form paragraph would not be appropriate". As such, the Examiner's rejection of Claim 32 as being incomplete is improper.

Further, Applicants cites two Supreme Court cases in which the Court held that it is not necessary to recite in the claim everything necessary to operate the device. As stated by Joseph Gray Jackson in The Art of Drafting Patent Claims, 59-60:

> In Deering v. Winona, 155 U.S. 286 (1894), the device was an agricultural machine and lacked the support necessary for the board which was an element of the claim. The Supreme Court, said, "True that it is necessary and true it is not in the claim but it does not have to be; the claim **does not have to include everything that is required to operate."**
>
> The other case is Special Equipment v. Coe, 324 U.S. 370, 64 USPQ 525 (1945), in which a subcombination claim was supported which related to a machine for cutting, peeling and coring pears, and there was no cutting knife involved in the claim. The Supreme Court said it is perfectly all right; **you do not have to have everything required to operate this device in the claim. Completeness is a much inflated "bugaboo" which is mainly of interest to certain examiners in the Patent Office, and should not really concern them. The claim is not a description of the device in any case. It is like a fingerprint which identifies the device.** The fingerprint looks not at all like the person, but it is an

identification of the person, and that is what we are interested in - identification.

If the Examiner is really rejecting Claim 32 because he feels the claim is overly broad, MPEP 706.03(d), paragraph 2, states, "The fact that a claim is broad does not necessarily justify a rejection on the ground that the claim is vague and indefinite or incomplete. In non-chemical cases, a claim may, in general, be drawn as broadly as permitted by the prior art." Applicants submit that a broad claim, no matter how broad, is not indefinite as long as the boundaries of the claim are capable of being understood. Accordingly, the 35 U.S.C. 112, second paragraph, rejection is improper since Claim 32 is clear, definite, complete and capable of being understood.

If the Examiner's concern is that a step has to be claimed without the recital of structure, then Applicants respectfully directs the Board's attention to 35 U.S.C. 112, sixth paragraph:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents.

2) Claims 1, 12 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Kenington (U.S. 6,794,931). Applicants respectfully traverse this rejection, as set forth below.

In order that the rejection of Claims 1, 12 and 21 be sustainable, it is fundamental that "each and every element as set forth in the claim be found, either expressly or inherently described, in a single prior art reference." *Verdegall Bros. v. Union Oil Co. of California,* 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See also, *Richardson v. Suzuki Motor Co.,* 9 USPQ2d 1913, 1920 (Fed. Cir. 1989), where the court states, "The identical invention must be shown in as complete detail as is contained in the ... claim".

Furthermore, "all words in a claim must be considered in judging the patentability of that

claim against the prior art." *In re Wilson,* 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Independent Claim 1, as amended, requires and positively recites, an **integrated transceiver** circuit, comprising: "a digital polar transmitter path that provides an amplitude/phase signal from a digital input, the transmitter path including at least one digital predistorter that predistorts the digital input to mitigate nonlinearities associated with a power amplifier", "a **receiver path associated with the digital transmitter path**", "a coupling element that provides the signal from the transmitter path to the receiver path" and "a signal evaluator that determines values for at least one parameter associated with the digital predistorter based on the signal".

Independent Claim 21 requires and positively recites, a method of calibrating a predistortion component in **a transceiver system**, comprising: "providing a first digital signal, containing amplitude information related to a desired analog signal, to a transmitter path", "providing a second digital signal, containing phase information related to the desired analog signal, to the transmitter path", "predistorting at least one of the first digital signal and the second digital signal in the digital domain according to at least one predistortion parameter", "generating an analog signal from the first digital signal and the second digital signal" and "processing the analog signal at **a receiver path associated with the transmitter path** to determine values for the at least one predistortion parameter".

In contrast, Kensington does not teach or suggest "an **integrated transceiver** circuit" as required by Claim 1 OR "**a transceiver system**", as required by Claim 21. Kensington does not teach "a **receiver path** associated with the digital transmitter path", as suggested by Examiner. The support in Kensington identified by Examiner (figure 7, col. 1, lines 66-67, col. 7, line 48 to col.6, line 10) does not support Examiner's determination.

Figure 7 in Kensington references an "amplifier configuration 700" (col. 5, lines 48-50).

While Kensington goes on to discuss "RF output of the system is sampled at directional coupler 710 and provided to splitter 712" (col. 5, lines 51-53), there is no teaching whatsoever that amplifier configuration 700 acts as "a **receiver path** associated with the digital transmitter path", as suggested by Examiner. The receiver part of the transceiver is missing. As such, Kensington fails to teach or suggest, "an **integrated transceiver** circuit" and "a **receiver path associated with the digital transmitter path**", as required by Claim 1 OR "**a transceiver system**" and "processing the analog signal at **a receiver path associated with the transmitter path** to determine values for the at least one predistortion parameter", as required by Claim 21. Accordingly, the 35 U.S.C. 102(e) rejection of Claims 1 and 21 is improper and must be withdrawn.

Claim 12 further defines the circuit of claim 1, the power amplifier comprising an external power amplifier that is external to the integrated transceiver circuit. Claim 12 depends from Claim 1 and stands allowable for the same reasons set forth above in support of the allowability of Claim 1.

3) Claims 1 and 12 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by McCune et al. (U.S. 6,366,177). Applicants respectfully traverse this rejection, as set forth below.

In order that the rejection of Claims 1 and 12 be sustainable, it is fundamental that "each and every element as set forth in the claim be found, either expressly or inherently described, in a single prior art reference." *Verdegall Bros. v. Union Oil Co. of California,* 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See also, *Richardson v. Suzuki Motor Co.,* 9 USPQ2d 1913, 1920 (Fed. Cir. 1989), where the court states, "The identical invention must be shown in as complete detail as is contained in the ... claim".

Furthermore, "all words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Independent Claim 1, as amended, requires and positively recites, an **integrated transceiver** circuit, comprising: "a digital polar transmitter path that provides an amplitude/phase signal from a digital input, the transmitter path including at least one digital predistorter that predistorts the digital input to mitigate nonlinearities associated with a power amplifier", "a **receiver path associated with the digital transmitter path**", "a coupling element that provides the signal from the transmitter path to the receiver path" and "a signal evaluator that determines values for at least one parameter associated with the digital predistorter based on the signal".

In contrast, McCune does not teach or suggest "an **integrated transceiver** circuit" as required by Claim 1. McCune similarly does not teach "a receiver path associated with the digital transmitter path", as suggested by Examiner. The circuit pointed out by Examiner (1031, 1033 and 1011) is not a receiver. Fig. 10 discloses a block diagram showing further details of one embodiment of a power modulator (as earlier disclosed in Fig. 9). Reference numeral 1031 is Angle Measurement; reference number 1033 is Magnitude Measurement; and reference numeral 1011 is PA Calibration Tables. Nowhere, however, does McCune teach or suggest that 1031, 1033 & 1011 together form a "receiver path associated with the digital transmitter path", as suggested by Examiner. Examiner's determination is supposition not supported by fact. Nothing more than improper hindsight reconstruction. As such, McCune fails to teach or suggest, "an **integrated transceiver** circuit" and "a **receiver path associated with the digital transmitter path**", as required by Claim 1. Accordingly, the 35 U.S.C. 102(b) rejection of Claim 1 is improper and must be withdrawn.

Claim 12 further defines the circuit of claim 1, the power amplifier comprising an external power amplifier that is external to the integrated transceiver circuit. Claim 12 depends

from Claim 1 and stands allowable for the same reasons set forth above in support of the allowability of Claim 1.

4) Claims 14 and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over McCune et al (6,366,177). Applicants respectfully traverse this rejection, as set forth below.

Claim 14 further defines the circuit of claim 12, the digital transmitter path comprising an amplitude modulated path that controls the supply to the external amplifier according to a first digital input, and a phase modulated path that provides a radio frequency input to the external power amplifier according to a second digital input. Claim 14 depends from Claim 12 and therefore stands allowable for the same reasons set forth above in support of the allowance of Claims 1 and 12 over McCune.

Claim 17 further defines the circuit of claim 14, the phase modulated path comprising a digital predistorter that adjusts the second digital input to mitigate nonlinearities associated with the power amplifier. Claim 17 depends from Claim 14 above and stands allowable for the same reasons set forth above.

5) Claims 1, 12, 13, 14, 15, 18 and 21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Camp, Jr et al (6,191,653). Applicants respectfully traverse this rejection, as set forth below.

Independent Claim 1, as amended, requires and positively recites, an **integrated transceiver** circuit, comprising: "a digital polar transmitter path that provides an amplitude/phase signal from a digital input, the transmitter path including at least one digital predistorter that predistorts the digital input to mitigate nonlinearities associated with a power amplifier", "a **receiver path associated with the digital transmitter path**", "a coupling element

that provides the signal from the transmitter path to the receiver path" and "a signal evaluator that determines values for at least one parameter associated with the digital predistorter based on the signal".

Independent Claim 21 requires and positively recites, a method of calibrating a predistortion component in **a transceiver system**, comprising: "providing a first digital signal, containing amplitude information related to a desired analog signal, to a transmitter path", "providing a second digital signal, containing phase information related to the desired analog signal, to the transmitter path", "predistorting at least one of the first digital signal and the second digital signal in the digital domain according to at least one predistortion parameter", "generating an analog signal from the first digital signal and the second digital signal" and "processing the analog signal at **a receiver path associated with the transmitter path** to determine values for the at least one predistortion parameter".

In contrast, Camp does not teach or suggest "an **integrated transceiver** circuit" as required by Claim 1 OR "**a transceiver system**", as required by Claim 21. Camp does not teach "a receiver path associated with the digital transmitter path (42, 48)", as suggested by Examiner. Figure 2 is a block diagram illustrating an amplifier circuit according to a second embodiment of Camp's invention (col. 2, lines 64-65). Reference number 42 is a "power detector circuit" (col. 4, lines 21-22) in power amplifier 32. Reference numeral 48 identifies a "comparator block" that compares the desired amplitude from the block 22 and the measures amplitude from the block 46 and a new correction value is calculated for the particular level of the desired amplitude (col. 4, lines 27-30). As such, Camp fails to teach or suggest, "an **integrated transceiver** circuit" as required by Claim 1 OR "**a transceiver system**", as required by Claim 21.

Examiner admits: 1) Camp does not teach that the input (A(t)) is a digital signal (Office action, page 7, line 5); 2) Camp does not teach that the input signal is analog or digital (Office action, page 7, lines 9-10); and 3) Camp does not teach that the at least one predistorter is a digital predistorter (Office action, page 7, lines 12-13). Examiner, however, argues that all or the

above are obvious teachings available to one having ordinary skill in the art at the time of the invention. But even if, arguendo, Examiner were correct in his presumptions #1-#3 above, which he is not, presumptions #1-#3 do not teach or suggest the above identified deficiencies of the Camp reference. As such, any combination of Camp and Examiner's presumptions #1-#3 does not teach or suggest all of the limitations of Claims 1 and 21. Accordingly, the 35 U.S.C. 103(a) rejection of Claims 1 and 21 is improper and must be withdrawn.

Applicants respectfully point out that, "all words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Moreover, even had the Examiner considered all of the words of Claims 1 and 21, in proceedings before the Patent and Trademark Office, "the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art". *In re Fritch*, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (citing *In re Piasecki*, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984). "The Examiner can satisfy this burden **only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references**", *In re Fritch*, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992)(citing *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988)(citing *In re Lalu*, 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed. Cir. 1988)).

Although couched in terms of combining teachings found in the prior art, the same inquiry must be carried out in the context of a purported obvious "modification" of the prior art. **The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification**. *In re Gordon*, 733 F.2d at 902, 221 USPQ at 1127. Moreover, **it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious**. *In re Gorman*, 933

F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed.Cir.1991). See also *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed.Cir.1985). For the reasons set forth above, Examiner has not set forth a prima facie case of obviousness for Claims 1 and 21. Accordingly, the 35 U.S.C. 103(a) rejection of Claims 1 and 21 is improper and must be withdrawn.

Claims 12, 13, 14, 15, and 18 stand allowable as depending directly, or indirectly, respectively from allowable Claim 1.

Claim 12 further defines the circuit of claim 1, the power amplifier comprising an external power amplifier that is external to the integrated transceiver circuit. Claim 12 depends from Claim 1 and stands allowable for the same reasons set forth above in support of the allowability of Claim 1.

Claim 13 further defines the circuit of claim 12, the power amplifier further comprising an internal power amplifier, the output of the internal power amplifier being provided to the external power amplifier. Claim 13 depends from Claim 12 and stands allowable for the same reasons set forth above in support of the allowability of Claim 12.

Claim 14 further defines the circuit of claim 12, the digital transmitter path comprising an amplitude modulated path that controls the supply to the external amplifier according to a first digital input, and a phase modulated path that provides a radio frequency input to the external power amplifier according to a second digital input. Claim 14 depends from Claim 12 and stands allowable for the same reasons set forth above in support of the allowability of Claim 12.

Claim 15 further defines the circuit of claim 14, the phase modulated path comprising a **digitally controlled oscillator**. Claim 15 depends from Claim 14 and stands allowable for the same reasons set forth above in support of the allowability of Claim 14. Moreover, VCO 452 in Camp is a voltage controlled oscillator (VCO) – NOT a digitally controlled oscillator, as determined by Examiner.

Claim 18 further defines the circuit of claim 14, the amplitude modulated path comprising a digital predistorter that adjusts the first digital input to mitigate nonlinearities associated with the power amplifier. Claim 18 depends from Claim 14 and stands allowable for the same reasons set forth above in support of the allowability of Claim 14.

An amendment after a final rejection should be entered when it will place the case either in condition for allowance or in better form for appeal. 37 C.F.R. 1.116; MPEP 714.12. This amendment places the case in condition for allowance. At a minimum, it places the application in better form for appeal by placing objected to Claims 2-11, 16, 19, 20, 22, 23, 27-29 and 31 in allowable form.

Claims 24-26 are allowed. Objected to Claims 2-11, 16, 19, 20, 22, 23, 27-29 and 31 have been amended to be in allowable form. Claims 1, 12-15, 17, 18, 21 and 32 stand allowable for the reasons set forth above. Applicants respectfully request withdrawal of the remaining rejections and allowance of the application at the earliest possible date.

Respectfully submitted,

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